

Remarks

Reconsideration and allowance of the subject application are respectfully requested.

Claims Status

Claims 1-5, 7-22, and 28-31 are pending. The independent claims are 1, 28, and 30.

Claim Rejection – 35 U.S.C. §103

Claims 1-3, 7-9, 14-21, and 28-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 5,408,070 to Hyllberg (hereinafter “Hyllberg”) in view of United States Patent No. 6,222,166 to Lin et al. (hereinafter “Lin et al.”), United States Patent No. 5,641,421 to Manov et al. (hereinafter “Manov et al.”), and United States Patent No. 4,817,419 to Iden (hereinafter “Iden”).

Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hyllberg in view of Lin et al., Manov et al., and Iden and further in view of United States Patent No. 5,320,513 to Schmidt (hereinafter “Schmidt”).

Claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hyllberg in view of Lin et al., Manov et al., and Iden and further in view of United States Patent No. 5,702,853 to Riley (hereinafter “Riley”).

Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hyllberg in view of Lin et al., Manov et al., and Iden and further in view of United States Patent No. 5,521,576 to Collins (hereinafter “Collins”).

Claims 10-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hyllberg in view of Lin et al., Manov et al., and Iden and further in view of United States Patent No. 4,787,836 to Osuna-Diaz et al. (hereinafter “Osuna-Diaz et al.”).

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hyllberg in view of Lin et al., Manov et al., and Iden and further in view of Schmidt and European Patent No. 0963829 A1 to Goldwin (hereinafter “Goldwin”).

Applicants respectfully traverse all art rejections.

No Motivation for Combining the Cited References

The Examiner has combined prior references for a **ceramic heater roller for a copying machine** (Hyllberg), an aluminum substrate thick film heater (Lin et al.), an **amorphous metallic allow electrical heater system for low and moderate temperatures** (Manov et al.), and a **fluid pressure sensor circuit** (Iden) together and asserted that this potpourri of references makes the claimed thick film heater for elevated temperature environments obvious.

In a recent appeal to the Board of Patent Appeals and Interference, an applicant successfully appealed an Examiner’s obviousness rejection. Specifically, the Board found that the Examiner had not explained “why a person of ordinary skill in the art would have found it obvious” to combine the references in the manner proposed by the Examiner. *Ex parte Gottling* (B.P.A.I. 2005) (unpublished). The Board noted that neither reference specifically recognized the advantages discussed in Gottling’s application.

In this case, the Examiner has combined, at least, four unrelated and non-analogous references and has not explained why a person of ordinary skill in the art would have found it obvious to combine the cited patents for a ceramic heater roller for copying machines, an aluminum substrate thick film heater, an amorphous metallic allow electrical heater system for low and moderate temperatures, and a fluid pressure sensor circuit. As will be explained below, combining some of these references would teach a device that would fail because some of the components in the cited references are not interchangeable. The advantages of the Applicants’ claimed invention are discussed in detail in the application. The Applicants respectfully request that the obviousness rejection be withdrawn.

Hindsight Reconstruction is Improper

Each of the independent claims (i.e., claims 1, 28, and 30) recites a novel combination of structure and/or function. To prevent hindsight reconstruction, the law is clear that a *prima facie* case of obviousness can be established **only** by showing some **objective** teaching in the cited art which would lead an individual of ordinary skill in this art to combine the relevant references. See *Ex parte Levengood*, 28 USPQ2d 1300, 1302 (Patent Office Board of Appeals 1993). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined **only** if there is some suggestion or incentive to do so. The mere fact that the prior art references may be modified does not make the modification obvious unless the prior art suggested the desirability of the modification. See *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1578, 221 USPQ 929, 933 (Fed. Cir. 1984). It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. See *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

It is well established that, in order to sustain a rejection under 35 U.S.C. §103, it is the burden of the United States Patent and Trademark Office to establish a *prima facie* case of obviousness. *In re Reuter*, 651 F.2d 751, 210 USPQ 249 (CCPA 1981). In asserting such a case of obviousness, the Examiner must propose some modification of a particular reference or a combination thereof with another reference in order to arrive at the claimed invention. In this regard, the teachings of a single prior art reference or a primary prior art reference (which is combined with one or more secondary prior art references) must be sufficient to justify a conclusion that any proposed modification or combination of references is what one of ordinary skill in the art would have found obvious to do at the time the invention was made. *In re Linter*, 458 F.2d 1013, 173 U.S.P.Q. 560, 562 (CCPA 1972). Moreover, the Courts have held that there must be some logical reason apparent from the evidence of record that would justify a modification or combination of prior art references. *In re Regel*,

188 USPQ 132 (CPPA 1975). If there is no such reason, the *prima facie* case of obviousness has not been made out. *Oscar Mayer Foods Corp. v. Sara Lee Corp.*, 15 USPQ (2d) 1204, (D.C. Wis., 1990).

Hindsight combination of references is not a valid basis for rejection under 35 U.S.C. §103. *In re Adams*, 148 U.S.P.Q. 742 (CPPA 1966) and *In re Skoll*, 187 U.S.P.Q. 481, 484 (CCPA 1975). Further, in *Twin Disc Inc. v. United States*, 10 Cl. Ct. 713; 231 USPQ 417, 425 (Cl. Ct. 1986), the Court stated:

... it is now clear beyond cavil that it is not permissible to ascertain factually what the inventors did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct the claimed invention.

Citing *Orthopedic Equipment Co., Inc. v. United States*, 702 F.2d 1005, 1012; 217 USPQ 193, 199 (Fed. Cir. 1983), the Court in *Twin Disc* further stated that it is incorrect to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.

Accordingly, the salient claimed features of the present invention are nowhere disclosed by the cited art, whether that art is taken individually or in combination.

Hyllberg Does Not Make the Claimed Structure and Arrangement Obvious

The Applicant claims, *inter alia*, that the dielectric layer is applied to the substrate surface and the resistive layer is applied to the dielectric layer and, significantly, that the thermally conductive non-flat substrate surface has a thermal coefficient of expansion substantially the same or slightly lower than the dielectric and resistive layers. (Claims 1, 28, and 30).

The Examiner has cited Hyllberg, which describes a heater roller for use in copying machines or paper making stating that “the thermally conductive layer is a ceramic and has a lower thermal coefficient of expansion with the electrodes that

comprises the dielectric layer” for the proposition that “it is obvious to have the layers to be [sic] of similar properties to prevent damage to the heater when the layers expand due to heating.” (Office Action, dated June 30, 2005, Page 2). The Applicant respectfully disagrees that this proposition is being taught by Hyllberg and therefore respectfully requests reconsideration. Nowhere in Hyllberg does it state this.

The Examiner has totally disregarded the structure and arrangement claimed by the Applicants. The heat regulating layer 12 and the electrodes 18, 19 are not in contact with each other in Hyllberg. The fact that these components may have different thermal coefficient of expansions does no more than confirm what is generally known (i.e., that different materials may have different thermal coefficient of expansions). The heat regulating layer 12 is neither the core or substrate, and is not directly applied to the core or substrate. Further, the electrodes 18, 19 are neither the core, dielectric, nor the resistive layer. Nowhere in Hyllberg does it teach, describe, or make obvious the Applicant’s claimed structure and arrangement. The advantages and benefits of the claimed language are explained in detail in the subject patent application. Reconsideration is respectfully requested.

Expectation of Success is Lacking

For an obviousness rejection, M.P.E.P. §2143 requires that there must be a reasonable expectation of success. Lin et al. teaches that the substrate should have a high thermal coefficient of expansion, such as with aluminum. (Col. 4, Lines 33-40). Lin et al. teaches that in the preferred embodiment, the substrate is made of aluminum or an aluminum alloy. (Col. 4, Lines 40-44). Further, Lin et al. teaches that aluminum has a melting point of 600 degrees C thus firing should be below 600 degrees C or specifically 580 degrees C. (Col. 5, Lines 28-34).

In stark contrast, Applicants’ invention is fired at 800 - 825 degrees C, which is well beyond the melting point of aluminum and the recommended firing taught in Lin et al. (Page 15, Lines 10-19). If the teachings of Lin et al. were applied to the Applicants’ claimed invention, there would be no reasonable expectation of success. Reconsideration is respectfully requested.

Non-analogous Prior Art References

The Examiner has improperly relied on non-analogous prior art references in his obviousness analysis and conclusion. “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” M.P.E.P. §2141.01(a), *citing*, In re Oetiker, 977 F.2d 1443 (Fed. Cir. 1992).

For example, in Wang Laboratories, Inc. v. Toshiba Corp., 993 F.2d 858 (Fed. Cir. 1993), the patent claims at issue were directed to single in-line memory modules (SIMMs) for installation on a printed circuit motherboard for use in personal computers, and used for dynamic random-access-memories. Id. The Examiner cited a reference to SIMMs developed for use in large industrial machine controllers and only taught the use of static random-access-memories or read-only-memories. Id. Significantly, the Federal Circuit found that the cited prior art reference was in a different field of endeavor because it involved memory circuits in which modules of varying sizes may be added or replaced, whereas the claimed invention involved compact modular memories. Id. The Federal Circuit went on to hold that the cited reference was non-analogous to the claims at issue. Id. **It is very important to note that the cited reference and the claims at issue dealt with SIMMs, but the Federal Circuit still held that the cited reference was non-analogous to the claims at issue.**

Similarly, in the above-identified patent application, the claims at issue require “resistive layer applied on said dielectric layer thereby forming a circuit for the generation of heat, the resistive layer having at least one resistive trace made of thick film ink in a pattern that is discontinuous circumferentially.” (Claim 1 and similar language in the other independent claims). As explained in the specification, the resistive trace (i.e., the resistive layer of thick film ink formed as a circuit) is fired at 800 degrees C. Moreover, the trace was designed to produce a temperature profile for processing molten material in a hot runner system. (Page 19, Lines 1-11). It is generally known by those having ordinary skill in the art that to maintain molten

material in a hot runner system requires an operating temperature of the nozzle at 425 degrees C.

The Examiner has cited Manov et al. for the proposition that “Manov teaches teaches [sic] the creation of a trace pattern on a heater that is discontinuous circumferentially on the heater body . . .” (Office Action, dated June 30, 2005, Page 3, Fourth Paragraph). Manov et al. reads, in pertinent part, “[t]his invention relates to electrical heater systems, and more particularly to such systems in which the heating elements are thin ribbons of amorphous metallic alloys that are operated at low and moderate temperatures. (Col. 1, Lines 7-10). Indeed, the claims of Manov et al. reflect this temperature limitation by claiming a maximum temperature of “below about 300 degrees Celsius.” (Claim 2). The reason for the restriction on temperature is explained in Manov et al. as: “if an amorphous metallic ribbon is operated at a high temperature, it not only can become brittle, it can become crystalline. The heater characteristics drastically change with such a change in structure. Amorphous materials start to become brittle and then crystalline at temperatures in the low hundreds of degrees C, and consequently amorphous materials are just not the stuff of which heating elements are traditionally made.” (Col. 5, Lines 46-53). Manov et al. stated that it “is an object of our invention to provide an electric heater that can be operated at relatively modest temperatures.” (Col. 5, Lines 54-55). Manov et al. teaches that the amorphous metallic alloys may be applied to hair dryers, stove burners, space heaters, water heaters, and the like.

The present case is similar to the facts in Wang Laboratories, Inc. v. Toshiba Corp.; however, the devices in the present case are more distinct from each other. Here, the claims at issue are to a thick film ink trace and the cited reference teaches a thin ribbon made of amorphous metallic alloy. In Wang Laboratories, Inc. v. Toshiba Corp. they were dealing with SIMMs. In Wang Laboratories, Inc. v. Toshiba Corp., the Federal Circuit stated that the prior art reference was non-analogous to the claims at issue because the claims were to SIMMs installed on printed circuit motherboards for use in personal computers, and used for dynamic random-access-memories, whereas the cited reference disclosed SIMMs developed for use in large industrial

machine controllers and only taught the use of static random-access-memories or read-only-memories.

Here, the claims at issue and the teaching of the cited prior art reference are even more distinct from each other than the SIMMs in Wang Laboratories, Inc. v. Toshiba Corp. Further, the amorphous metallic ribbon in Manov et al. operates at temperatures significantly lower than the Applicants' claimed resistive trace made from thick film. Manov et al. teaches applying the amorphous metallic ribbon to hair dryers, stove burners, space heaters, water heaters, and the like, whereas the claimed invention is used on hot runner systems. Recalling that the Federal Circuit noted that the SIMMs in Wang Laboratories, Inc. v. Toshiba Corp. were used in different devices (e.g., personal computers as opposed to industrial machines) and, thus, found that the cited reference was non-analogous to the claims at issue. Reconsideration is respectfully requested.

Suggestion to Combine the Cited References is Absent

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination (emphasis added). *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Monteffiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). Accordingly, even if all elements of a claim are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill would have been prompted to combine the teachings of references to arrive at the claimed invention. *In re Regel*, 188 USPQ 132 (CCPA 1975). The Federal Circuit has noted that to "prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness." *In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998).

The above cited rules of law have been summarized in the Manual of Patent Examining Procedures. “First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings.” “Second, there must be a reasonable expectation of success.” Finally, the prior art reference (or references) must teach or suggest all the claim limitations. M.P.E.P. §2143.

The Examiner states that “it would have been obvious to one of ordinary skill in the art to modify Hyllberg with a thick film ink as taught in Lin for an improved heating layer, a discontinuous [sic] circumferential design as taught by Manov for ease in manufacturing of the pattern on a cylindrical body and contact pads and resistive trace formed by thick film ink as taught by Iden because thick film technology is used for formation of electrical high density miniature circuits on a supporting substrate.” (Office Action, Page 4, Second Paragraph).

Again quoting the Manual of Patent Examining Procedures, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” M.P.E.P. §2143.01. It is inconceivable to see why someone having ordinary skill in the art would place an amorphous metallic ribbon that is rated for “low and moderate temperatures” on the high temperature device disclosed in Lin et al. Lin et al. points out a disadvantage in the prior art that is specifically taught by Manov et al (i.e., low operating temperatures). Specifically, Lin et al. reads that “the glass will significantly loose [sic] its insulation resistance properties, so the heater is limited to temperatures below 300 degrees C.” (Col. 2, Lines 45-48). This is what Manov et al. teaches and claims. Indeed, Manov et al. claims “an operating temperature below about 300 degrees Celsius. (Claim 2).

In summary, the prior art does not suggest the desirability of the combination of Lin et al. with Manov et al. In contrast, the combination of these references are a disadvantage as stated in the Background of the Art in Lin et al., and, thus, there is no teaching, suggestion, or incentive supporting this combination.

Previous Responses

Applicants' previous Responses to Office Actions for the above-identified case are hereby incorporate by reference to preserve the right to use the contents of said Responses in an Appeal, if needed.

Summary

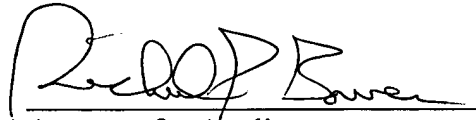
The benefits of the Applicants' device are described in the patent application. This is a unique combination not suggested by the references. In fact, combining at least Lin et al. and Manov et al. goes against their teaching and renders the resulting apparatus unusable or defective.

It is submitted that the combination of these references is obtained only by impermissible hindsight reconstruction using Applicants' teachings. The Supreme Court of the United States cautioned against using hindsight in Graham et al. v. John Deere Company, 148 USPQ 459 (1966). Applicants respectfully submit that there has been no demonstration that the references are a *prima facie* showing of obviousness. As such, the rejections under 35 U.S.C. §103 are improper, reconsideration is requested, and withdrawal of the rejection is respectfully requested.

In view of the above, it is submitted that the claims in this application are allowable, and an early notice of allowance is solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3507. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Richard P. Bauer", written over a horizontal line.

Attorney for Applicants
Richard P. Bauer
Registration No. 31,588

PATENT ADMINISTRATOR
KATTEN MUCHIN ROSENMAN LLP
525 West Monroe Street
Chicago, Illinois 60661-3693
Facsimile: (312) 902-1061

WAS01_41623634_1_213201_00054 10/31/2005 3:48 PM